

REMARKS**I. PRELIMINARY REMARKS**

No claims have been amended or canceled. Claims 18-25 have been added. Claims 1-25 remain in the application. Reexamination and reconsideration of the application, as amended, are respectfully requested.

II. PRIOR ART REJECTIONS**A. The Rejections**

Claims 1-10 and 13-17 have been rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Pub. No. 2003/0138685 to Jankowski ("the Jankowski publication"). Claims 11 and 12 have been rejected under 35 U.S.C. § 103 as being unpatentable over the combined teachings of the Jankowski publication and U.S. Patent No. 5,300,370 to Washington ("the Washington patent"). The rejections under 35 U.S.C. § 103 are respectfully traversed. Reconsideration thereof is respectfully requested.

B. Discussion Concerning Claims 1-10 and 13-17

Independent claim 1 calls for a combination of elements including, *inter alia*, "a manifold structure constructed from a substrate having a face surface and an elongate fuel chamber" and "an elongate electrolyte secured between an anode positioned adjacent to said fuel chamber and a cathode positioned adjacent to an oxygen containing region." The respective combinations defined by claims 2-10 and 13 include the elements recited in claim 1. Independent claim 14 calls for a combination of method steps including, *inter alia*, the steps of "defining an elongate fuel chamber in the thin-film substrate" and "operably securing an elongate proton exchange membrane-electrode assembly, having an anode and cathode, to said substrate and adjacent to said elongate fuel chamber." The respective combinations

defined by claims 15-17 include the steps recited in claim 14. The Jankowski publication fails to teach or suggest such combinations.

For example, and as noted in the Office Action, the Jankowski publication fails to teach or suggest an elongate fuel chamber and an elongate anode-electrolyte-cathode structure. Nor does the Jankowski publication teach or suggest the steps of forming an elongate fuel chamber and securing an elongate membrane electrode assembly adjacent to the elongate fuel chamber. Instead, the Jankowski publication includes a variety of fuel cell structures with a plurality of what appear to be square fuel chambers.¹ With respect to the anode-electrolyte-cathode structures, the Jankowski patent appears to either disclose a large single square anode-electrolyte-cathode structure that is associated with all of the fuel chambers (Figure 3), or an anode-electrolyte-cathode structure that is associated with a single fuel chamber (Figures 2, 5 and 8) and has a corresponding shape.

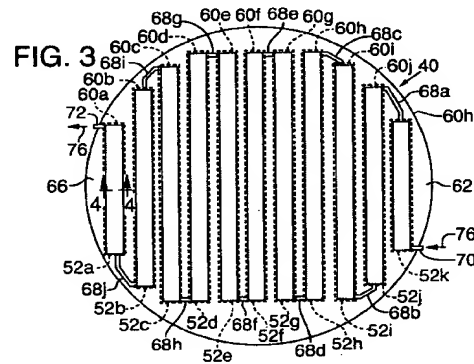
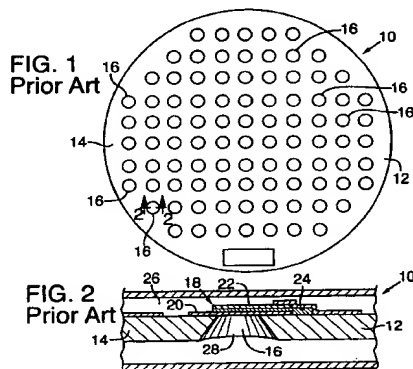
The Office Action has taken the position that reconfiguring the Jankowski fuel chambers and anode-electrolyte-cathode structures would have been an obvious matter of design choice and, in support, has cited MPEP § 2144.04 IV, which in turn cites *In re Daily*, 149 USPQ 47 (CCPA 1966).² It is not entirely clear that the relevant portion of the almost 40 year-old *Daily* case is still good law. See, for example, *In re Kotzab*, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) ("Even when obviousness is based on a single prior art reference, there must be a showing of a suggestion or motivation to modify the teachings of that reference."). Nevertheless, and assuming for the sake of argument that the *Daily* case is still good law, the facts of the *Daily* case are readily distinguishable from the present situation. The invention in *Daily* was a nursing container that included a top section with a nipple opening, a bottom section that collapses as fluid leaves the container, and a nipple. The collapsibility of the bottom section, which prevented air from entering the container as liquid was drained from the container, was the key feature of the container. Such a container was, however, shown in a prior art reference. The claims that are relevant to MPEP § 2144.04 IV further indicated that the mating surfaces of the top and bottom sections of the

¹ See, for example, Figure 3 and the last two lines of paragraph 0030; Figure 5 and paragraph 0038; and Figure 7.

² A copy of the *Daily* case is attached hereto as Exhibit 1 for the Examiner's convenience.

container were a portion of a sphere less than a hemisphere, and that the spherical portions had central angle of about 80° . Although these shapes were not present in the prior art reference, the CCPA indicated that the applicant “presented no argument which convinces us that the particular configuration of their container is **significant** or is anything more than one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of providing mating surfaces in the collapsed container of [the prior art reference].” 149 USPQ at 50, *emphasis added*.

Conversely, with respect to the presently claimed inventions, the admitted differences between the Jankowski fuel cell designs and the claimed combinations are extremely significant and the present application goes to great lengths to explain the significance. Referring to Figures 1 and 2, which are reproduced below, the present application includes a discussion of a prior art design with non-elongate (i.e. “cup-shaped”) fuel chambers 16 and correspondingly-shaped anode-electrolyte-cathode structures (i.e. PEMs 24). [See page 2, lines 24-32 of the specification.]



The specification indicates that the prior art design:

[U]nnecessarily limits the amount of electricity it can produce and needlessly complicates its manufacture, thereby limiting its usefulness for commercial purposes. For example, the amount of PEM 24 surface area available to interact with the fuel is limited. Moreover, it is difficult and time consuming to initially manufacture and then consistently fill a plurality of cup-shaped chambers 16 with fuel. It is also difficult to ensure uniform flow through all of the available cup-shaped chambers 16 during operation of the fuel cell.

[Page 3; lines 1-10.] The non-elongate fuel cell designs illustrated in the Jankowski publication would present the same problems when a plurality of the fuel cells are employed. The presently claimed invention, which utilizes elongate fuel chambers and

elongate anode-electrolyte-cathode structures, as is illustrated for example in Figure 3 (reproduced above), reduces these problems.

Another significant difference that is not explicitly mentioned in the specification is the fact that the non-elongate fuel cell/fuel chamber design inefficiently occupies the surface area of the underlying substrate and, therefore, produces less electricity than it otherwise could. More specifically, when a plurality of cup-shaped fuel chambers 16 and correspondingly-shaped PEMs 24 are employed, the fuel chambers and PEMs must be spaced in both the X and Y-directions, as is illustrated in Figure 1 (reproduced above). The non-elongate fuel cell designs illustrated in the Jankowski publication would present the same problems when a plurality of the fuel cells are employed. Conversely, elongate fuel chambers and elongate anode-electrolyte-cathode structures, examples of which are illustrated in Figure 3 (reproduced above), only require spacing in the Y-direction. As such, the claimed elongate design facilitates significantly higher electricity production in a given substrate surface area.

Accordingly, applicant respectfully submits that the differences between the inventions defined by independent claims 1 and 14 and the Jankowski fuel cell designs are not insignificant to the overall inventions, as was the case with the *Daily* mating surfaces. Rather, the differences between the inventions defined by independent claims 1 and 14 and the Jankowski fuel cell designs are significant differences which produce significant beneficial results.

Finally, applicant notes that in response to some of applicant's previous remarks, the Office Action indicated that "the concept of increasing surface area of an electrode to increase electrical output is well known in the art ..." Even assuming for the sake of argument that this statement is true, applicant respectfully submits that the differences between the claimed inventions and the Jankowski fuel cell designs do not involve a mere increase in surface area. Instead, the claims call for a different shape that provides the benefits discussed above.

In view of the foregoing, applicant respectfully submits that the Jankowski publication fails to create a *prima facie* case of obviousness with respect to independent claims 1 and 14 and that the rejection of claims 1-10 and 13-17 under 35 U.S.C. § 103 should be withdrawn.

C. Discussion Concerning Claims 11 and 12

The Washington patent, which has been cited for its purported serpentine flow path teachings, does not remedy the aforementioned deficiencies in the Jankowski publication. For example, the Washington patent does not indicate that the fluid flow plates illustrated therein should be used in combination with elongate anode-electrolyte-cathode structures. As such, claims 11 and 12 are patentable for at least the same reasons as independent claim 1 and the rejection of claims 11 and 12 under 35 U.S.C. § 103 should also be withdrawn.

III. NEWLY PRESENTED CLAIMS 18-25

Newly presented claim 18 calls for a combination of elements comprising “a substrate defining a plurality of elongate fuel chambers with respective elongate fuel chamber openings” and “a plurality of elongate fuel cells, including respective anodes and cathodes, secured to the substrate and positioned over respective elongate fuel chamber openings such that the anodes face the elongate fuel chambers and the cathodes are hydraulically isolated from the elongate fuel chambers.” Applicant respectfully submits that the cited references fail to teach or suggest such a combination and that claims 18-25 are patentable thereover.

IV. CLOSING REMARKS

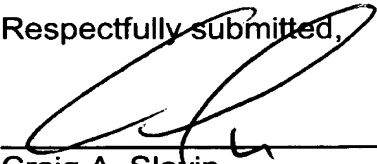
In view of the foregoing, it is respectfully submitted that the claims in the application are in condition for allowance. Reexamination and reconsideration of the application, as amended, are respectfully requested. Allowance of the claims at an early date is courteously solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is respectfully requested to call applicant's undersigned representative at (310) 563-1458 to discuss the steps necessary for placing the application in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 08-2025. Should such fees be associated with an extension of time, applicant respectfully requests that this paper be considered a petition therefor.

9/7/04

Date

Respectfully submitted,


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In re Dailey and Eilers, 149 USPQ 47 (CCPA 1966)

In re Dailey and Eilers

**(CCPA)
149 USPQ 47**

Decided Mar. 24, 1966

Appl. No. 7491

U.S. Court of Customs and Patent Appeals

Headnotes

PATENTS

Particular patents-Nursing Container

Dailey and Eilers, Nursing Container, claims 25 to 28 of application refused.

Case History and Disposition:

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Appeal from Board of Appeals of the Patent Office.

Application for patent of Donald E. Dailey and Anton F. Eilers, Serial No. 814,110, filed May 18, 1959; Patent Office Group 460. From decision rejecting claims 25 to 28, applicants appeal. Affirmed; Smith, Judge, dissenting with opinion.

Attorneys:

John Rex Allen (Richard S. Phillips of counsel) both of Chicago, Ill., for appellants.

Clarence W. Moore (J. F. Nakamura of counsel) for Commissioner of Patents.

Judge:

Before Worley, Chief Judge, and Rich, Martin, Smith, and Almond, Associate Judges.

Opinion Text

Opinion By:

Worley, Chief Judge.

This appeal is from the decision of the Board of Appeals which affirmed the examiner's rejection of claims 25-28 in appellants' application ¹ for "Nursing Container."

The invention relates to a disposable nursing container for infants. Appellants state:

The nursing container with which the invention is concerned is collapsible so that air is not admitted as the contents are drained. Accordingly the likelihood of the infant swallowing air during feeding, believed to be a major cause of colic, is reduced.

A further feature is that the top section of the container has the nipple receiving opening therein and the bottom section is collapsible into the top section. The bottom section is more flexible than the top section to facilitate the collapse thereof.

The particular construction which appellants disclose to achieve those results is illustrated in the following drawings:

Fig. 2

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

Fig. 6

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

Appellants describe that construction and its use in their specification as follows:

Top and bottom sections 11 and 12 of container 10 are preferably of a thin formed plastic sheet material or the like. By "plastic" any suitable flexible material is intended, including rubber, synthetic plastics and the like. * * * Both sections have a generally spherical configuration and are somewhat less than hemispherical in extent. In the specific container illustrated in the drawings, the two sections are defined by a central angle of the order of 80°. This relationship provides a finished container

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which has a rounded configuration and is convenient to hold. * * *

At the time of feeding, * * * pressure [is applied] to the wall of the container forcing the nipple out. At the same time, any air left in the container during filling is expelled through the nipple so that the infant swallows no air from the container. * *

*

If the infant requires stimulation to cause it to nurse properly, a slight pressure applied to the bottom of the container by the palm of the hand forces some of the formula out through the nipple into the infant's mouth. As the formula is withdrawn from the container the bottom section 12 collapses within the upper section 11 as indicated in Figure 6 forcing formula into the nipple keeping it filled. This collapse starts at the juncture line 13 between the container sections and progresses inwardly therefrom so that formula is not trapped between collapsed portions of the bottom section wall and the wall of the top section. *It is not necessary for air to enter the container as the formula is withdrawn and the cross cut nipple acts as a check valve allowing only the outward flow of formula and restricting inward flow of air.* Thus the likelihood of the infant swallowing substantial quantities of air during nursing is reduced. As the container and nipple are free of air at all times during feeding, it is not necessary that the container be elevated above the infant, but it may be in any position above or below. * * * [Emphasis supplied]

Claim 25 is illustrative:

25. A disposable, plastic infant nursing container of the character described, comprising: a top section of self-sustaining formed material having a nipple opening therein; a bottom section of self-sustaining, formed flexible plastic material sealed to the first section and collapsible thereinto, said bottom section being more flexible than the top section and having a shape such that in the collapsed condition is closely mated with the interior of the top section, said bottom section retaining a position in which it is placed, whereby the bottom section readily collapses upon the withdrawal of the container contents, without retarding or aiding the flow of the contents therefrom; and a nipple mounted on said top section and communicating with the opening therein, said nipple having a slit therein defining a valved nursing opening, whereby the interior of the container is sealed and during nursing the container contents are withdrawn without admission of air to the container, causing collapse of the bottom container section.

Claim 26 defines the valved nursing opening as a cross-cut valve. Claim 27, while defining no particular nipple opening structure, recites the configuration of the top and bottom sections of the container as that of "a portion of a sphere less than a hemisphere." In claim 28, the central angle of those spherical portions is about 80°.

The references are:

Matzen 554,071 February 4, 1896.

Bardin 2,433,806 December 30, 1947.

Allen 2,446,451 August 3, 1948.

Blanchett 2,989,961 June 27, 1961.

Matzen's nursing bottle is shown in the following drawing:

Fig. 2

Tabular, graphic, or textual material set at this point is not available. Please consult hard copy or call BNA PLUS at 1-800-452-7773 or 202-452-4323.

Matzen's object is:

* * * to provide a bottle in which no air is admitted and in which no vacuum is formed as the milk is withdrawn by the baby, and * * * to provide a bottle from which the milk will flow continuously and evenly, whatever the size of the opening in the nipple.

The patentee describes his construction as consisting

* * * of a nursing-bottle made of two parts, one of which is flexible,

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the other rigid, and in which the flexible part operates to prevent a vacuum in the bottle as the milk is drawn out by the child and promotes evenness in the flow, * * *.

* * * Fig. 2 is a view of said bottle when the two parts are connected and the bottle has been substantially emptied, the flexible part in this case being drawn into the rigid part.

While part A is made of a rigid material, part B consists of

* * * flexible material so thin and light that it will readily respond to the suction of the infant through the nipple and surrender itself to such suction with practically no resistance whatever of its own, thus following the withdrawal of the milk and at last losing itself bodily in the upper half, A, and filling the space thereof, as seen in Fig. 2. I believe that a good quality of elastic rubber is the best material from which to make the part B, and now use very thin vulcanized rubber for this purpose. * * *

Matzen describes the use of his container thus:

* * * The nipple is put on and then the collapsible part B is compressed until all of the air is forced out through the hole in the nipple, whereupon the bottle is ready to give to the child. As the baby sucks the milk from the bottle, the collapsible part B is gradually drawn into the part A, thus reducing the capacity of the bottle, and this goes on until the milk is withdrawn and said part B substantially fills the part A, * * *

Matzen noted several problems with respect to "ordinary" nursing bottles. In the use of the ordinary rigid glass bottle, the nipple construction necessarily must allow air to be admitted into the bottle, or the flow of milk will cease. Thus the infant had to stop sucking frequently in order that air may be admitted. The presence of air in the bottle results in the baby sucking in air with the milk, with colic as a consequence. The nipple opening in the ordinary bottle had to be relatively large; if small, on the order of a pinhole, the rubber

surrounding the hole effectively sealed the nipple opening to entry of air and prevented further withdrawal of milk as well. On the other hand Matzen stated:

* * * if the hole in the nipple is so large that it will not close up and exclude the air, it is at the same time so large that the baby gets the milk too fast.

With my bottle the finest pin-hole may be formed in the nipple, and a small but regular and uninterrupted stream will flow through it.

Matzen also noted his bottle

* * * has the exceptional and distinguishing advantage of being ready to yield its contents to the child whatever the position of the bottle may be. Indeed, one position is practically as good as another and the milk comes freely in all positions. *
* *

A detailed discussion of Allen appears unnecessary, beyond noting he discloses a similar nursing container having a bottom portion which

* * * automatically collapses and retracts into the rigid neck as the last of the liquid is sucked from the container by an infant using the nursing unit, in this way providing a non-colic nursing unit in view of the fact that no accumulation of air is permitted within the container.

Blanchett discloses a nipple construction for use with ordinary rigid nursing bottles in which the nipple opening may consist of a cross cut, an I cut, a Y cut, a single hole, or multiple holes. Blanchett states:

* * * The various "cuts" are preferable to the holes because they do not leak when the nursing unit is turned upside down. Neither do they become plugged.

The board did not find it necessary to discuss Bardin, nor do we.

The board agreed with the examiner that claims 25-28 were unpatentable over Matzen or Allen in view of Blanchett. It found claims 25 and 26 to distinguish over Matzen only in terms of the type of nipple opening employed, and claims 27 and 28 to distinguish only in reciting a "less than a hemisphere" configuration. In answer to appellants' argument that their particular slit nipple opening provides a self-sealing action to prevent continuous flow and loss of formula from the nurser, the board noted that Blanchett fully appreciated the ability of such an opening to prevent leaks. With respect to claims 27 and 28, it further agreed that the configuration of the container is a "mere matter of choice" not significantly novel over Matzen.

Appellants urge that Matzen is devoid of any suggestion of the desirability of combining a collapsible container with a valved nipple which is responsive only to the sucking of the infant,

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thereby providing intermittent milk flow. Indeed, appellants state that Matzen promotes the idea of a nipple with a pinhole in it as desirable in order to obtain regular and uninterrupted

flow of milk from the container. ² It is appellants' position that the prior art recognizes neither the problem nor result desired and cannot be said to suggest a solution to the problem.

Taking appellants' argument at face value, we think one skilled in the art could hardly be unaware, after reading Matzen, that continuous flow or leakage might be an undesirable feature of the Matzen nursing container construction. Blanchett also recognizes the problem of fluid leakage from a hole opening in a nipple when the container is held upside down and, in a matter-of-fact manner, discloses the solution to that problem-the use of a "slit" nipple opening. We think one of ordinary skill in the art would find it obvious to use the slit nipple of Blanchett in the collapsible container of Matzen in order to achieve intermittent flow responsive to sucking.

As noted above, Matzen discloses that the flexible portion of his container is drawn into the rigid top portion, filling the space thereof. Appellants have presented no argument which convinces us that the particular configuration of their container is significant or is anything more than one of numerous configurations a person of ordinary skill in the art would find obvious for the purpose of providing mating surfaces in the collapsed container of Matzen. See *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 .

The decision of the board is *affirmed*.

Footnotes

Footnote 1. Serial No. 814,110, filed May 18, 1959.

Footnote 2. As the Solicitor points out, it is not at all certain that appellants' interpretation of Matzen is consistent with the actual teaching of that reference. While appellants interpret Matzen as disclosing a container which provides a continuous flow of milk at all times, it seems equally likely that Matzen's container, having a nipple with a pinhole, provides a continuous flow only so long as the infant is sucking, which the infant may do without necessity of stopping to allow air into the container.

Dissenting Opinion Text

Dissent By:

Smith, Judge, dissenting.

The majority opinion stands without support as to either the facts upon which it predicates the opinion or the law which it applies thereto. Its logic is the fallacious logic which leads to the conclusion that since each of the words in Lincoln's "Gettysburg Address" were individually old and well known at the time he used them, it would have been obvious for anyone of ordinary skill with a dictionary before him, to have written it. It is this logic which supports the conclusion of the majority here from which we may assume that today with "The Gettysburg Address" before him, it would be obvious for any school boy to select